

5

What is claimed is:

508 A³ 1. A method for communicating within a system including a master unit and one or more slave units, said method comprising the steps of:

10 assigning a member address to a first slave unit, said member address corresponding to a selected time slot of a plurality of time slots defined by a system clock, said time slots repeating in cycles;

assigning to said first slave unit a first extended address associated with an occurrence of said selected time slot within at least a selected one of said cycles; and

transmitting information from said first slave unit to said master unit during said occurrence of said selected time slot.

15

2. The method of claim 1 further including the step of assigning to a second slave unit said member address and a second extended address associated with a different occurrence of said selected time slot within one or more of said cycles, said second slave unit being disposed to transmit information during said different occurrence of said selected time slot.

20

3. The method of claim 2 further including the step of determining whether less than a maximum permitted number of said slave units have been assigned to said member address, said maximum permitted number of slave units being determined by performing a division operation in which a bandwidth associated with said member address is divided by a bandwidth allocated to said first slave unit, said maximum permitted number of slave units being no greater than a quotient of said division operation.

25

4. The method of claim 1 further including the step of polling said first slave unit during one of said plurality of time slots immediately preceding said occurrence of said selected time slot.

30

5. The method of claim 4 further including the step of polling said second slave unit during one of said plurality of time slots immediately preceding said different occurrence of said selected time slot.

35

5 6. The method of claim 1 further including the step of synchronizing said master unit, said first slave unit and said second slave unit to said system clock, said first extended address and said second extended address corresponding to first and second states of said system clock.

10 7. The method of claim 1 wherein said step of assigning a member address includes the step of determining whether a bandwidth associated with extended addresses corresponding to said member address is no less than a desired bandwidth of said first slave unit.

15 8. The method of claim 1 further including the step of assigning a second member address to a second slave unit, said second member address corresponding to a different selected time slot of said plurality of time slots, said second slave being disposed to transmit information during each occurrence of said different selected time slot.

20 9. The method of claim 8 further including the step of assigning, to a third slave unit, said first member address and a second extended address associated with a different occurrence of said selected time slot within one or more of said cycles, said third slave unit being disposed to transmit information during said different occurrence of said selected time slot.

25 10. The method of claim 8 further including the step of polling said first slave unit during one of said plurality of time slots immediately preceding said occurrence of said selected time slot, and polling said second slave unit during the one of said plurality of time slots immediately preceding said different selected time slot.

30 11. A communication system in which a sequence of time slots repeats in cycles, said communication system comprising:

a first slave unit; and

a master unit, said master unit including:

means for assigning a member address to said first slave unit, said member address corresponding to a selected one of said sequence of time slots;

5 means for assigning to said first slave unit a first extended address associated with an occurrence of said selected one of said sequence of time slots within one or more of said cycles, said first slave unit being disposed to transmit information during said occurrence of said selected one of said sequence of time slots.

10 12. The communication system of claim 11 further including a second slave unit; said master unit including means for assigning to said second slave unit said member address and a second extended address associated with a different occurrence of said selected one of said sequence of time slots within one or more of said cycles, said second slave unit being disposed to transmit information during said different occurrence of said selected one of said
15 sequence of time slots.

20 13. The communication system of claim 11 further including a second slave unit, said master unit including means for assigning a second member address to said second slave unit, said second member address corresponding to a different selected time slot of said sequence of time slots, said second slave unit being disposed to transmit information during each occurrence of said different selected time slot.

25 14. In a communication system in which a master unit communicates with one or more slave units during a sequence of time slots repeating in cycles, said master unit comprising:

means for polling a first slave unit;

means for assigning a member address to said first slave unit, said member address corresponding to a selected one of said sequence of time slots; and

30 means for assigning to said first slave unit a first extended address associated with an occurrence of said selected one of said sequence of time slots within one or more of said cycles, said first slave unit being disposed to transmit information during said occurrence of said selected one of said sequence of time slots.

35 15. The master unit of claim 14 further including means for assigning to a second slave unit said member address and a second extended address associated with a different occurrence of said selected one of said sequence of time slots within one or more of said

